

Environmental Management System Internal Assessment Report

Program Environmental Management System
Date September 28, 2010
Review Author Richard Cellamare

Scope

The Department of Energy (DOE) requires its contractors to develop an environmental management system (EMS), a structured set of processes and practices designed to enable an organization to increase its operating efficiency, continually improve overall environmental performance, and better manage and reduce its environmental impacts. The specific requirements of the EMS that Berkeley Lab must implement are defined in DOE Order 450.1A, *Environmental Protection Program*. One key requirement is that the EMS must reflect the eighteen elements of the International Organization for Standardization (ISO) 14001:2004(E), *Environmental Management Systems Requirements with Guidance for Use*.

Another key requirement of DOE Order 450.1A is to internally review the Berkeley Lab's EMS to check that documentation and objectives are in conformance with the above 18 elements. Opportunities and hurdles to progressing in accordance to the plan will be assessed to assist LBNL in meeting its EMS goals. This work is being performed as part of LBNL's Environmental Compliance Audit and Assessment Program (ECAAP)⁽¹⁾ and will follow LBNL recommended templates used in the ECAAP. The scope of work for the EMS Internal Assessment is provided in Attachment 1. This scope of work is limited to a review of conformance with the Laboratory's EMS, not compliance with other environmental regulations under the ECAAP.

This audit reviewed the documentation for the following EMS elements:

- Environmental Policy
- EMS Environmental Aspects
- Objectives and Targets
- Environmental Management Programs (EMPs)
- Training and Awareness (Training, Awareness, and Competence element)
- Communication
- EMS Documentation
- Document Control
- Operational Control
- Monitoring and Measurement
- Internal Audit (of EMS Audits element)
- Management Review

Limited focus was provided on the elements of General Requirements; Other Requirements (of Legal and Other Requirements element); Structure and Responsibility; Emergency Preparedness and Response; Nonconformance, Corrective, and Preventive Actions; and Records. These elements were not significantly investigated except to check that they were addressed in the documentation of Berkeley Lab's March 2009 EMS Plan⁽²⁾.

The audit also involved interviewing EMS Core Team members that were involved as leads in the implementation of Environmental Management Programs (EMPs) that were developed to address Significant Environmental Aspects. The interviews helped assess progress and continual improvement of these programs.

Part of this assessment also included review of the 2008 LBNL EMS Internal Assessment⁽³⁾, the April 28, 2009 NSF Validation Audit Report⁽⁴⁾, and the September 2009 Management Review⁽⁵⁾ documents. A breakdown of the finding, observations, recommendations and noteworthy practices from these reports was collected in Attachment 2, which was used as a tool to assess how the EMS has progressed and improved over time to the time of this 2010 EMS Internal Assessment.

Summary

The Internal Auditor (Richard Cellamare, EMS Consultant) concluded from his desktop review of the EMS documentation and interviews with the EMS Core Group that Berkeley Lab's EMS is meeting the elements that were reviewed. The audit generated no non-conformances to DOE Order 450.1A or the ISO standard. The audit generated three recommendations or opportunities for improvement and two noteworthy practices. The recommendations and noteworthy practices are identified below in the EMS elements reviewed and are summarized under the sections of Recommendations and Noteworthy Practices.

Regarding interviews, the Environmental Services Group Leader and the EMS Program Manager were interviewed in person on the date shown below. The EMS Core Team Members that are managing EMPs and the DOE Site Office were interviewed by telephone on the dates shown below.

Ron Pauer, Environmental Services Group
Leader, 9/23/10

Robert Fox, EMS Core Team Member, 9/24/10

Blair Horst, EMS Core Team Member, 9/21/10

John Speros, EMS Core Team Member, 9/22/10

Pat Thorson, EMS Program Manager, 9/23/10

Kim Abbott, DOE-Berkeley Site Office, 9/28/10

Assessment Results

Finding: There were no findings related to the DOE Order or the ISO standard. The recommendations and noteworthy practices are provided below.

Environmental Compliance Audit and Assessment Report

This internal assessment is presented here by the EMS elements that were reviewed:

1. Environmental Policy – Increased care is being taken as part of the Management Review process to review the Environmental Policy. The Environmental Policy is provided in the EMS Plan and in PUB-3000, LBNL's Health and Safety Manual (Chapter 11, Environmental Protection)⁽⁶⁾. The policies are not totally consistent; one item "Correcting environmental hazards and cleaning up existing environmental problems" is not included in PUB-3000. **Recommendation 1:** Make policies consistent to reduce confusion.
2. EMS Environmental Aspects – Review of the last three EMS Core Team Meeting minutes – 9/1/09, 2/25/10, 8/5/10^(7,8,9) – indicate that Environmental Aspects are reviewed at each meeting and Significant Environmental Aspects such as storm water protection (8/5/10 meeting) are being considered, showing an example of environmental aspects review and continual improvement.
3. Objectives and Targets (O&Ts) – Based on review of the EMPs, the EMS Core Team develops, implements, and measures the O&Ts defined in its EMPs and is meeting the scheduling of most of the Actions to Achieve Objective. Some O&Ts are currently undergoing significant change because of the new goals for managing energy and water

usage and transportation activities to reduce greenhouse gases under Executive Order (EO) 13514.

4. Environmental Management Programs – Based on the above-referenced EMS Core Team minutes, the team closely reviews EMP performance and O&Ts to meet changing DOE Orders. Interviews with EMS Core Team members indicate that energy and water EMPs are under review as a result of EO 13514. EMP actions are met on schedule through EMS Core Team and the support of other task managers through completion of Actions to Achieve Objective. EMPs that were reviewed are listed in References 10 through 18. Several Actions to Achieve Objective are due for 9/30/10 in the EMPs. The EMS Core Team members seemed confident that actions will be achieved on time or could be modified based on justifiable changes that were required due to the new Executive Order 13514.
5. Training and Awareness – The EMS Program Manager has prepared articles in Today at Berkeley Lab (TABL) to help increase Laboratory employees' awareness of EMS and pollution prevention measures. **Noteworthy Practice 1:** Additionally, the sustainLBL website⁽¹⁹⁾ is a noteworthy tool for increasing employee awareness on understanding and measurement of significant environmental impacts as well as acting as tool for employees to learn more about how they can make "green or environmentally-preferable purchases (EPP) and perform self-assessment of best practice identified in the Environmental Review and Self-Assessment Checklist⁽²⁰⁾. The EMS Core Team appears to receive continual training from the knowledgeable EMS Program Manager and Core Team members, particularly through the EMS Core Team meetings mentioned above and the September 24, 2009 Management Review meeting mentioned earlier. Tracking and recording of this training is being considered through the Laboratory's Job Hazards Analysis system.
6. Communication – Based on EMS Core Team and Management Review meetings mentioned earlier, there is good communication between management, the EMS PM and Core Team members. The sustainLBL website and TABL newsletter provide good internal communication of EMS activities and are public sites that can be used for external communication. **Recommendation 2:** Based on a 9/28/10 telephone interview with Kim Abbott, DOE-Berkeley Site Office, it is recommending that some external communication channels be used to help show noteworthy efforts of the Laboratory to the public and the DOE complex. Channels that may be considered include the Community Advisory Group and the monthly DOE Joint Environmental Sustainability Network/EMS Network teleconference calls to tell about sustainLBL and the accomplishments of the EMPs. As a recommendation from the 2009 Management Review, EMS Core Team meetings now include the participation of a Public Affairs representative to develop and implement this measure.
7. EMS Documentation – The Environmental Services Group makes EMS documents and procedures available to the Laboratory through its EMS or ESG websites where appropriate based on release of information to the public and the Laboratory. EMS documentation is provided on the sustainLBL website and EMS procedures 261 through 271 through 276^(21 through 26) provide procedures for operation and management of the EMS Core Team, for review of Environmental Aspects and EMPs, for Core Team Training, and for conducting Audits and Management Reviews. No significant problems were found in these procedures.
8. Document Control – **Recommendation 3:** Some of the older documents can be properly archived, e.g., the three Fact Sheets in the EMS website.
9. Operational Control – Actions to Complete Objective in the EMP's reflect that Operational Control is adequately developed and implemented.

10. Internal Audit – Under the ECAAP procedures, auditing plans result in internal audits on an annual basis except for every three years, when an external audit. For the April 28, 2009 NSF-External Validation Audit, the EMS Program Manager has developed a self-assessment to address the opportunities for improvement, see Addressing Opportunities For Improvement Stemming from April 28-30, 2009 NSF-ISR Audit of LBNL's Environmental Management System⁽²⁷⁾. Since these opportunities are recommendations for improvement, some have been implemented or are under consideration for the future. **Noteworthy Practice 2:** The EMS Program Manager takes actions to see that audit observations and findings are prioritized and addressed to keep the EMS on track. The observations and recommendations of the 2008 Internal Audit have been addressed during 2009 and 2010 (See Attachment 2 for additional details, which have shown that the EMS Program Manager has taken initiative and action to use audits to generate continual improvement of the EMS Program.)
11. Monitoring and Measurement – The EMPs reflect that progress is continually being measured to check achievement of objectives. Additionally EMS goals, the Performance Evaluation and Measurement Plan, and DOE Environmental Scorecard metrics are reviewed and used to check the Lab's performance on a continual basis.
12. Management Review – Based on review of the 9/24/09 meeting minutes, the EMS Program Manager is doing an excellent job of apprising management and team members on educating them and apprising them on changes in EMS program elements. A recommendation was made at the September 2009 Management Review that these meetings be held twice a year instead of once per year to help improve the opportunity to develop budgeting needs for implementation EMS objectives. Further consideration on this recommendation is that its intent will be satisfied with one Management Review meeting that is held much earlier in the calendar year where reporting on the status of EMPs will be more complete since most EMPs have fiscal year targets and where it is early enough in the fiscal year that decisions on budgetary priorities can be more effective at driving success of the EMS.

Recommendations

1. Check for consistency of the environmental policy in PUB-3000, Chapter 11 and the EMS Plan. See EMS element 1. (Environmental Policy) above.
2. Based on discussion with the DOE Berkeley Site Office, it is recommended that some external communication channels be used to help show the noteworthy efforts of the Laboratory to the public and DOE complex. See EMS element 5. (Communication) above.
3. Some of the older documents can be properly archived, e.g., the three Fact Sheets in the EMS website. See EMS element 8. (Document Control) above.

Noteworthy Practices

1. Communication and Training – The sustainLBL is a great tool for communicating Laboratory efforts to carry out sustainability initiatives. It is a tool that can be used to inform the public, other DOE labs, as well as the LBNL community on measures taken by the Lab that can to reduce it's environmental footprint and on information that can help them make decisions in environmentally-preferable purchasing and day-to-day measures they can do to reduce energy, water, and material use. See EMS element 5. (Training and Awareness) above
2. EMS Audits – The EMS Program Manager has been maximizing the use of internal and external audits by being very responsive to addressing audit observations and meeting recommendations to see that the EMS is continually improved. The EMS Program Manager has been instrumental in educating and guiding the EMS Core Team on the

EMS and steering the Laboratory in a direction that promotes continual improvement as reflected by the above practices. See EMS element 10. (Internal Audit) above

Causal Analysis

The observations, which are listed above in the *Assessment Results* section, are linked to the most closely related root cause category and description found in Appendix D of the *Environmental Compliance Audit and Assessment Program Manual* (LBNL-1636E, Rev. 1, March 2009). Except for the general ongoing challenge of maintaining documentation by busy staff, a causal analysis did not seem to add significant value to this audit.

Referenced Documents

1. Environmental Compliance Audit and Assess Program Manual, March 2009 rev.1
2. EMS Plan, March 2009 rev. 4, LBNL Environmental Services Group
3. LBNL Internal Assessment (September, 2008), Internal Assessment of the LBNL Performance-Based Environmental Management System, LBNL Office of Contract Assurance
4. NSF External Validation Audit Report, April 28, 2009
5. Environmental Management System Management Review, September 24, 2009
6. LBNL Health and Safety Manual, PUB-3000, Chapter 11, Environmental Protection
7. EMS Core Team Meeting minutes – September 1, 2009
8. EMS Core Team Meeting minutes – February 25,2010
9. EMS Core Team Meeting minutes – August 5, 2010
10. EMP No.: 05-01D Diesel Particulate Matter Air Emissions, Revised 1/13/10
11. EMP No.: 07-01B Energy & Water Use, Revised 1/12/10
12. EMP No.: 07-05B Petroleum Use, Revised 11/2/09
13. EMP No.: 04-05 Procurement of Goods and Services, Revised 8/1/10
14. EMP No.: 07-03B Solid Waste Generation, 9/14/10
15. EMP No.: 07-02B Water Use, 9/20/10
16. EMP No.:07-01B Energy Use, 9/21/10
17. EMP No.: 01-1I Greenhouse Gases, 9/14/10
18. EMP No.: 07-04 Traffic Congestion, 8/5/10
19. sustainLBL Website
20. Environmental Review and Self-Assessment Checklist (see Reference 19)
21. EMS Implementation (Core) Team, EH&S Procedure 271, Rev. 3, Effective Date: 4/1/2009
22. Identification of Significant Environmental Aspects and Impacts for the EMS,EH&S Procedure 272, Revision 4, Effective Date: 4/1/2009
23. Environmental Management Programs of the EMS, EH&S Procedure 273, Revision 4, Effective Date: 4/1/2009
24. EMS Training, EH&S Procedure 274, Revision 3, Effective Date: 4/1/2009
25. EMS Assessments and Audits, EH&S Procedure 275, Revision 3, Effective Date: 4/1/2009
26. Management Review of the EMS, EH&S Procedure 276, Revision 2, Effective Date: 4/1/2009
27. Addressing Opportunities For Improvement Stemming from April 28-30, 2009 NSF-ISR Audit of LBNL's Environmental Management System

Attachment 1
Scope of Work
Proposed Environmental Management System (EMS)
Internal Review for September 2010

Objective: The internal review will check that documentation and EMS Core Team objectives are in conformance with the 18 elements of the LBNL EMS program. Opportunities and hurdles to progressing in accordance to the plan will be assessed to assist LBNL in meeting its EMS goals. This work is being performed as part of LBNL's Environmental Compliance Audit and Assessment Program (ECAAP) and will follow LBNL recommended templates used in the ECAAP. This scope of work will be limited to a review of compliance with the Laboratory's EMS, not compliance with other environmental regulations/requirements under the ECAAP.

Work Breakdown

The work will consist of the following tasks:

- Task 1 Review and Assessment of the documentation listed below in items I.A, II, and III (Off-site)
- Task 2 Interview with EMS Core Group (item I.B below) on EMS Progress/Updates and Review of Report with EMS Program Manager (On Site at LBNL)
- Task 3 Complete and e-Mail Internal Review Report (Off-site)

Schedule

The schedule proposed for this work is:

Task 1	Sept. 13 to 20, 2010
Task 2	Sept. 21, 22, 23 <u>or</u> 24, 2010
Task 3	Sept. 29, 2010

I. Review of EMS Documents and EMS Core Team Interview

A. Documents and records reviewed were:

- LBNL Performance-Based EMS Plan
- EHS Procedure 271, Establishing the EMS Implementation Team
- EHS Procedure 272, Identification of Significant Environmental Aspects and Impacts
- EHS Procedure 273, Environmental Management Programs
- EHS Procedure 274, Training
- EHS Procedure 275, EMS Assessments and Audits
- EHS Procedure 276, Management Review
- EMS Training program
- EMS Training records
- Core Team meeting minutes
- Aspects worksheets
- EMPs and related documents
- Articles from *Today at Berkeley Lab* relevant to EMS
- Environmental Management System (EMS) Plan, 2009
- Environmental Compliance Audit & Assessment Program Manual, 2009
- EMS Internal Assessment Plan, 2005
- EMS Internal Assessment Reports, 2007 and 2008
- EMS External Validation Audit Report, 2009
- Memoranda provided by the Core Team during interviews
- ECAAP requirements for EMS Assessment

B. Interviews:

Ron Pauer, EMS Core Team Leader
Robert Fox, Team Member
Blair Horst, EMS Core Team Member

John Speros, EMS Core Team Member
Pat Thorson, EMS Program Manager Kim
Abbott, DOE-Berkeley Site Office

II. NSF-ISR External Validation Audit Report, 2009

A. Review of Opportunities for Improvement (OFI)

- OFI #1 – Documenting - Facility could consider clearly documenting the authority level for entire staff associated with the EMS.
- OFI #2 – External communications - Facility could consider establishing a file for documenting commentaries or questions received from external parties and defining who of the recipients has responsibility for responding.
- OFI #3 – Documenting - Facility could consider a review of all other requirements to ensure they are in fact all identified and documented.
- OFI #4 – Management review - Facility could consider making its EH&S Procedure 276 more definitive as to what items should be included "for sure" in its EMS management review.
- OFI #5 - Objectives & targets communication - Facility could consider strengthening its communication programs regarding its environmental objectives, targets and EMPs.
- OFI #6 – Obsolete documents - Facility could, additionally to archiving obsolete documentation in separate archive files, consider watermarking the documents with an "obsolete"; marking of some kind.
- OFI #7 - Documents of external origin - Facility could consider documenting identified "documents of external origin" in a special file.
- OFI # 8 - EMS records location - Facility could consider analyzing its EMS records to ensure all are included the EMS records inventory.

III. 9/24/09 Management Review Meeting Summary

A. Recommendations

- Coordinate funding efforts in future years since we are all under Operations.
- Continue to promote the replacement of petroleum-based vehicles with alternative fueled vehicles, especially electric such as the GEM carts.
- Make contact with Laura to ensure that activities important to EMS, such as sustainable practices, are addressed by her effort.
- Expand the 3R program to other buildings because it benefits the Lab in several ways.
- Work with John Seabury in order to determine how to best capture EMS training requirements within the Job Hazards Analysis system.
- Invite Mark Chekal-Bain from Public Affairs to at least one EMS Core Team meeting to learn more about the EMS and sustainable practices.
- Host two management review meetings each fiscal year.
- Next Management Review Meeting Tentatively March 18, 2010

Attachment 2 - 2010 Internal Assessment and Results from Earlier Assessments and Management Review

EMS Areas/Elements Assessed	Observations, Findings, or Noteworthy Practices of the Earlier Assessment	Observations and Recommendations for the 2010 Internal Assessment
2008 Internal Assessment		
<p>EMS Program</p> <p>LBNL continues to integrate EMS with the existing ISM system. In FY07 most divisions used the Environmental Review and Self-Assessment Checklist as a basis for assessing their environmental impact and performance. The Environmental Services Group (ESG) EMS website contains the EMS Plan, the 2007-2008 Environmental Management Programs (EMPs), and the internal assessment and third-party audit reports. The website also contains EMS fact sheets with a summary of the EMPs; however, the most recent fact sheet posted is from June 2007. The ESG website also contains the LBNL Site Environmental Report (SER), including a chapter on LBNL's EMS describing the program and status of EMPs. These web pages are accessible to LBNL staff and the public.</p> <p>LBNL broadly publicized EMS related matters over the past year in <i>Today at Berkeley Lab</i>. The daily electronic newsletter included numerous articles on topics such as energy conservation, solid waste diversion, hazardous waste handling, pollution prevention, and sustainable building design.</p>	<p>Observation: The Laboratory lacks a coherent source of information on EMS-related matters. Details on the EMS program, waste minimization/pollution prevention, sustainable development, green purchasing, applicable research, etc., are dispersed throughout LBNL websites. The Laboratory should consider development and maintenance of a centralized source of information.</p> <p>Observation: The Laboratory Director has not specifically endorsed LBNL's EMS. A statement of senior leadership commitment to achieving and maintaining compliance with applicable environmental protection requirements will be required under the new DOE O 450.1A when fully implemented.</p>	<p>The sustainLBL and ESG websites provide good sources of centralized information that can be used to direct Laboratory staff to other informational sources where appropriate. The sustainLBL site also has potential as a good marketing tool for outreach to the public and other DOE laboratories.</p> <p>Like the Lawrence Livermore National Laboratory Director, LBNL could make a statement to specifically endorse the EMS. From discussions with EMS Core Team members, the LBNL Director has set up and publicized a Sustainability Committee to address a significant environmental aspect of the EMS and has endorsed Sustainability in the Draft LBNL Long Range Development Plan.</p>
<p>EMS Implementation Team</p> <p>The EMS Core Team is meeting procedural requirements for membership and participation. Under the leadership of the ESG Leader, the EMS Core Team designed,</p>	<p>No findings identified.</p>	<p>The EMS Core Team started meeting on a semi-annual basis rather than quarterly. This seems congruent with the time needed to</p>

EMS Areas/Elements Assessed	Observations, Findings, or Noteworthy Practices of the Earlier Assessment	Observations and Recommendations for the 2010 Internal Assessment
implemented, and maintains the EMS Plan. The team meets on a regular basis, approximately quarterly. Meetings are used to train Core Team members, identify significant aspects and impacts, discuss implementation of the EMPs and consider the impact of regulatory updates on LBNL's EMS. The new Facilities Division Sustainability Coordinator joined the team in early 2008.		implement and allocate funding for projects.
Identification of Significant Aspects and Impacts The EMS team is meeting procedural requirements for identifying significant aspects and impacts. The team began the latest annual review of environmental aspects and determination of significant impacts in January 2008 and completed the review in February 2008. These aspects involve waste generation and recycling, emissions and discharge, materials and resources use, and land and building development and use. The review process is documented in worksheets and aspects are characterized by the requisite factors, including amounts/size, health risk, limits, and goals. Aspects are then scored according to a prescribed list of significance categories.	No findings identified.	Based on the EMS Core Team meeting minutes the significant environmental aspects and impacts are being addressed on a periodic basis that is congruent with the timeframe in which program changes, EMPs objectives and targets are implemented. Based on discussions with Facilities (Blair Horst, 9/21/10), some of the program changes have resulted from the new Executive Order (EO 13514, <i>Federal Leadership in Environmental, Energy, and Economic Performance</i> , October 5, 2009) to address new energy and water usage goals that will also address reduction of greenhouse gases. The new EO results in revisions to projects and programs to meet energy, water, and transportation goals that were originally planned to meet the goals of DOE Order 430.2b, <i>Departmental Energy, Renewable Energy and Transportation Management</i> .
Environmental Management Programs The EMS team is meeting procedural	Observation: Data collection for procurement of	Based on discussions with Procurement

EMS Areas/Elements Assessed	Observations, Findings, or Noteworthy Practices of the Earlier Assessment	Observations and Recommendations for the 2010 Internal Assessment
<p>requirements for developing and implementing EMPs. EMPs are used as a formal planning tool and include information regarding tasks, responsibilities, timing, affected department, monitoring requirements, and metrics. The EMPs list objectives and targets established for each significant aspect.</p> <p>The 2007 Berkeley Site Office EMS Review found that <i>"The LBNL Performance-Based Environmental Management System Plan does not include a requirement to document why an EMP was closed. In order to evaluate the effectiveness of the plan, the rationale for closure must be documented. (DOE Order 450.1, Attachment 2, Contractor Requirements Document, Requirement 1).</i> LBNL addressed this finding by modifying EMS Procedure 273 Environmental Management Programs, to require closure information in EMPs.</p>	<p>Energy Star Products (ESPs) and Recycled Content Products (RCPs) remains an arduous task. The EMP for increased procurement of ESPs and RCPs includes modification of the PCard and PeopleSoft PO and PCard systems to require buyers to enter Environmentally Preferable Purchasing data; however, the target due date for this activity has been deferred several times and by approximately 18 months. An appropriate level EMS Management Review over the last two years may have helped prioritize this important action.</p> <p>Recommendation: Update Procedure 273 <i>Environmental Management Programs</i> and the EMP form to require justification for significant extensions to due dates.</p>	<p>(John Speros, 9/22/10), DOE has made some effort to reduce the effort of having to address as many RCPs as required in earlier implementation of the EPP initiative.</p> <p>The new website, sustainLBL will be a helpful tool in increasing employee awareness on the purchase of EPP products and products under EPEAT.</p>
<p>EMS Assessments and Audits</p> <p>Internal and external audits were conducted per procedural requirements. The Office of Contract Assurance (OCA) conducted internal assessments in 2005, 2006, and 2007; and NSF International Registrations, Ltd. conducted an audit in September 2005. Both internal assessments and the third-party audit included interviews of key EMS personnel and a review of all relevant documentation.</p>	<p>No findings identified.</p>	<p>Noteworthy Practice: The EMS Program Manager assures that timely audits are scheduled and audit findings, observations, and recommendations are addressed to keep the EMS in an active review and continual improvement process.</p>
<p>Training</p> <p>EMS training is conducted per procedural requirements. All Core Team members have</p>	<p>No findings identified.</p>	<p>The newest training tool is sustainLBL to help LBNL staff understand sustainable</p>

EMS Areas/Elements Assessed	Observations, Findings, or Noteworthy Practices of the Earlier Assessment	Observations and Recommendations for the 2010 Internal Assessment
<p>attended comprehensive EMS training addressing EMS awareness, environmental aspects and impacts, determination of significance, and preparation of EMPs. The Core Team Leader has attended an EMS implementation training course presented by an external party, and most of the Management Review Team has received EMS awareness training. The internal auditor has attended EMS implementation and EMS auditor training.</p>		<p>measures in energy, water, and materials conservation. Today at Berkeley Lab articles by the Environmental Energy Technology Division help keep employees in a state of awareness about energy and environmental measures that are being investigated by LBNL and others. Additional articles have been published in TABL to help encourage employees on how to reduce their environmental foot print in the transportation sector through alternative transportation measures. As of March 2009, LBNL unified some of its information sources through existing lead document – PUB – 3000 and developed sustainLBL website to include EMS Program documents.</p> <p>A TABL article on EMS was 7/2/09 presented DOE's acceptance that the Lab has a fully-implemented EMS and showed the significant progress in meeting targets in the EMPs. Good awareness and education for lab staff. TABL articles also helped staff learn of sustainable activities such as the Great Race to reduce the use of single driver motor vehicle usage.</p> <p>Noteworthy Practice: The sustainLBL website is a wonderful tool for helping Laboratory staff find out how they can help, particularly with day-to-day measures typical of the Environmental Review and Self-Assessment Checklist and in performing good practices in Environmentally Preferable Procurement and products evaluated under the Electronic Product Environmental Assessment Tool (EPEAT)</p>
Management Review		

EMS Areas/Elements Assessed	Observations, Findings, or Noteworthy Practices of the Earlier Assessment	Observations and Recommendations for the 2010 Internal Assessment
<p>The Management Review is intended to aid LBNL management in determining the need to make changes to the EMS program. Topics may include one or more of the following:</p> <ul style="list-style-type: none"> • EMP progress • Significant environmental impacts • Candidate projects for addressing the significant environmental impacts • Results of EMS internal assessments and external audits • Recommendations for continual improvement. <p>The 2007 internal assessment found that <i>“The Management Review conducted in March 2007 did not include the appropriate participants; absent were both the Chief Operating Officer and the Chief Financial Officer. The Core Team Leader provided meeting minutes and copies of the handouts to all invitees, and offered to conduct follow-up sessions with the COO and CFO. Neither requested a follow-up meeting.”</i> In response to this finding the EMS Core Team Leader revised the EMS Program Plan to require, as a minimum, an annual review with the EH&S Division Director, and attendance of other Senior Laboratory Leadership optional. In addition to an annual management review, the EMS Core Team Leader discusses EMS activities with the EH&S Division Director during routine meetings.</p>	<p>Finding: There was no annual management review of the EMS per requirements of Revision 2 of the <i>LBNL Environmental Management System Plan</i>. Revision 3 of the <i>LBNL Environmental Management System Plan</i> allows for greater flexibility in attendance at management reviews and does not require that they be documented. However, Revision 3 was approved by the EMS Core Team and EH&S Division Director in July 2008 and the most recent documented management review occurred in March 2007, 16 months prior.</p> <p>Recommendation: Reconsider the minimum required participation in the annual management reviews. Conducting the management review at a standing Senior Laboratory Management meeting, such as the Operations Senior Staff, would broaden the audience for the management review, may enhance awareness and ownership of LBNL’s EMS, and provide a forum for Senior Laboratory Leadership feedback on the EMPs.</p> <p>Noteworthy Practice: Management increased support of the LBNL EMS by staffing an EMS program manager. Upon the issuance of DOE O 450.1A, <i>Environmental Protection Program</i>, the EMS Core Team Leader performed a preliminary needs assessment for implementation of the expanded requirements at LBNL. He proposed a new position to manage the Laboratory’s EMS to the EH&S Division Director. Senior Laboratory Leadership approved the new position and recruitment is underway.</p>	<p>Since the NSF review in June 2009, the EMS Program Manager and Core Team have been preparing to implement Management Reviews on a semiannual basis starting in September 2009. The planned March 2010 review, however, was missed with the coming of a newly appointed EHS Director.</p> <p>A recommendation was made at the September 2009 Management Review that Management Review be held twice a year instead of once per year. The thought was that this would improve the opportunity to develop budgeting needs for implementation EMS objectives. Additional consideration on this recommendation led to the conclusion that the intent be satisfied with one Management Review meeting that is held much earlier in the calendar year where reporting on the status of EMPs will be more complete since most EMPs have fiscal year targets and where it is early enough in the fiscal year that decisions on budgetary priorities can be more effective at driving success of the EMS</p>

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2009 NSF External Review		
4. Management Review: Consider making EH&S Procedure 276 more definitive as to the items included in the annual EMS management review.	<p><i>Observation #4</i> <i>Root Cause Category:</i> Procedures Implementation <i>Root Cause Description:</i> Procedures have been developed but are inadequate.</p>	Per 9/23/10 interview with Pat Thorson, an outline has been prepared: <i>Addressing Opportunities For Improvement Stemming from April 28-30, 2009 NSF-ISR Audit of LBNL's EMS</i> . The outline offers an general outline for addressing the opportunities for improvement (OFI). Since they are they are not conformance issues they will be taken on through the EMS PM on an opportune basis if not already addressed.
8. EMS Records: Consider analyzing its EMS records to ensure all are included in the EH&S records inventory maintained by Berkeley Lab's Archives and Records Office.	<p>Observations #3, #6, #7, and #8: <i>Root Cause Category:</i> Documentation/Regulations/Tracking/Recordkeeping <i>Root Cause Description:</i> Document control system and record retention policy does not exist or is inadequate.</p>	See above
1. Documenting Authority Level: Consider clearly documenting the authority level for entire staff involved with implementing EMS.	<p>Observation #1 <i>Root Cause Category:</i> Policy Statement and Implementation <i>Root Cause Description:</i> Formal policies are not issued from an appropriate level of authority.</p>	See above
2. External Communications: Consider establishing a file for documenting commentaries or questions received from external parties and defining which recipient of the commentaries or questions has responsibility for responding.	<p>Observations #2 and #5: <i>Root Cause Category:</i> Communication <i>Root Cause Description:</i> Personnel concerns are not solicited, addressed, or documented.</p>	See above
3. Documenting "Other Requirements": Consider a review of all "other requirements" to ensure they are in fact all identified and documented.	See Observations #8 above.	See above
5. Objective & Targets Communication:	See Observation #2 above.	Today at Berkeley Lab 7/2/09 article

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Consider strengthening the EMS communication programs regarding its environmental objectives, targets and Environmental Management Programs.		identified progress and results in EMP objectives and targets and sustain LBL website provides educational information for LBNL community.
6. Obsolete Documents: In addition to the practice of archiving obsolete documentation in separate archive folders, consider watermarking the documents with an "obsolete" marking of some kind.	See Observation #8 above	See above. As an example, his observation comes up in the 2008 EMS Internal audit, where old Fact Sheets on the EMS Website could be archived.
7. Documents of External Origin: Consider documenting identified "documents of external origin" in a special file.	See Observation #8 above	See above.
Management Review Sept. 24, 2009		
Environmental Policy: The first topic on the agenda included the text of the environmental policy as documented by the EMS Plan. EMS Program Manager EMS PM) asked attendees to review it and provide him with any comments.		Good practice as part of the EMS review process.
Environmental Aspects: EMS PM held up a multi-page printout of the worksheet that summarizes the identification and determination of environmental aspects (activities) and their impacts. He noted that red-colored text in the matrix represents content that changed with this year's review update. EMS PM defined the concept of environmental aspects for the group and described the major activity categories that delineate this worksheet.		Good practice to train management on environmental aspects that are evaluated by EMS Core Team. EMS PM refreshed EMS Core Team on Environmental Aspects concept.
EMP Status EMP No.: 05-01D Diesel Particulate Matter Air Emissions: EMP to reduce diesel		Revised 1/13/10 - Switched to contracted bus service using cleaner vehicles.

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emissions from two sources; building emergency generators and vehicles (primarily the shuttle bus fleet). The target is 5% per year.		Installation of generators for 9/30/10 on track.
EMP No.: 07-01B Energy & Water Use: The reduction targets for these two EMPs are a 30% and 16%, respectively, in use intensity by fiscal year 2015. Getting to these targets is outlined in the Lab's Sustainability Executable Plan that Blair manages and updates yearly.		<p>Revised 1/12/10 – Based on 9/21/10 telephone call to B. Horst, this EMP will be undergoing further revision in light of the 10/5/09 Executive Order 13514 which sets GHG targets. The Sustainability Executable Plan are being modified into a Strategic Sustainability Performance Plan to meet the goals of the order:</p> <ul style="list-style-type: none"> • 30% reduction in vehicle fleet petroleum use by 2020; • 26% improvement in water efficiency by 2020; • 50% recycling and waste diversion by 2015; • 95% of all applicable contracts will meet sustainability requirements; • Implementation of the 2030 net-zero-energy building requirement; • Implementation of the stormwater provisions of the Energy Independence and Security Act of 2007, section 438, and; • Development of guidance for sustainable Federal building locations in alignment with the Livability Principles put forward by the HUD, DOT, and EPA
EMP No.: 07-05B Petroleum Use: The goal for this EMP is a 2% reduction each year in petroleum use relative to fiscal year 2005 and the Lab is on pace to meet this goal.		Revised 11/2/09 - Continued progress and on track in meeting goals.

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<p>We've been successful over the years by using alternative fuels such as biodiesel and E85, and continually changing the mixture of conventional fueled to alternatively fueled vehicles in the Lab's fleet.</p>		
<p>EMP No.: 04-05 Procurement of Goods and Services: For Environmentally Preferable Products, the metric is measured by tracking the percentage of recycled content product purchases. The goal is to increase the amount of these purchases by 5% each year. Choosing sustainable products is optional. Consider developing a list of recommended products for the Lab community. Ron took this thought a step further and felt that in some areas, purchasing of certain EPPs could be made mandatory.</p>		<p>Revised 8/1/10</p> <p>Good interchange on challenge of meeting EPP goals. In a time of changing products and limited dollars, wise decisions are needed to make EPP purchases that will fulfill making practical purchases but at the same time encourage change toward greener and more sustainable products.</p> <p>Recommend focusing on a set of products or product group and perhaps particular departments that can pilot certain products. Life Cycle Analyses are time-consuming and challenging; however, documenting rationales for selection of certain EPP products can be useful for increasing employee awareness. The current sustainLBL website looks like it has progressed to currently serve this purpose.</p> <p>From 9/22/10 telephone interview with J. Speros, DOE has assisted in creating more focus by coming up with 16 major products/product areas that contractors can focus on, which is a reduction from the 60 product categories used in previous years..</p> <p>Purchase of remanufactured toner cartridges is still voluntary. LBNL Procurement plans to email 208 of the over 400 users on the benefits of using remanufactured alternatives.</p> <p>Purchase of office furniture has been a</p>

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		<p>success in meeting achieving a high percentage of dollars spent on furniture with recycled content, 1.2 million out of a total of 1.6 million dollars have been spent on recycled content furniture.</p> <p>Tracking EPP procurements continues to be a challenge in part due to the change in contract from Corporate Express to Staples and also mainly due to the labor time analyzing and sorting data to qualify EPP products.</p>
<p>EMP No.: 07-03B Solid Waste Generation: Pat noted that this EMP has a target of a 5% increase in solid waste diversion for the fiscal year and data so far indicates the rate is well above this target.</p>		<p>Revised: 9/14/10. Target and progress remain the same.</p>
<p>Results of EMS assessments and audits:</p> <p>The external audit earlier this spring by NSF revealed no findings, though there were 8 opportunities for improvement. It was determined that at least four of these opportunities were worthy of implementing into the Lab's EMS (i.e., external communications, documenting "other requirements", objectives and targets communication, and EMS records).</p>		<p>Discussed with Pat Thorson how the four observations are being addressed.</p> <ul style="list-style-type: none"> • External Communication – This observation was consistent with a 9/28/10 telephone interview with Kim Abbott, DOE SSO. LBNL can highlight some of its accomplishments in the DOE complex through the bimonthly DOE EMS Conference calls and perhaps get some of the salient features of the LBNL EMS out to the public, e.g. Community Action Group. • Documenting Other Requirements – Limited comment. The only observation is getting some EO 13514 into the documentation but this will be morphed by a DOE Order in the near future. • Objectives and Targets Communication

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		<p>– Last communication appears to be the 7/2/09 Today at Berkeley Lab article mentioned earlier.</p> <ul style="list-style-type: none"> • EMS Records – No comment.
<p>Adequacy and effectiveness of training program:</p> <p>The EMS PM mentioned that training is one area receiving greater emphasis by DOE and the federal government in annual performance tracking. An example is that refresher training is now explicitly required to achieve a higher grade in the DOE Scorecard reporting. The biggest impact this has right now on the EMS applies to the Core Team. The EHS Director asked if this training is captured by EH&S training. Recommendation: It was suggested working with EHS Training Coordinator in order to determine how to best capture EMS training requirements within the Job Hazards Analysis system.</p>		<p>Try to capture EMS Training for the Core Team using the Job Hazards Analysis tracking system.</p>
<p>Sustainable Practices: This area is also receiving more emphasis in DOE Scorecard and the University of California Performance Evaluation and Measurement Plan (PEMP) performance tracking systems. One Core Team member expressed some concern that there is double counting taking place between the PEMP in sections 5 (EH&S) and 7 (Facilities). However, it is noted that the extent of the factors associated with each The one page handout provided by the EMS PM, mentioned earlier, identified the nine individual areas that comprise sustainable practices. In discussing the list, the EHS Director said that these are</p>		<p>PEMP, DOE Scorecard performance measures with EMS goals appear to be integrated.</p>

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<p>evidence that we are walking the talk when it comes to sustainable practices. It was noted that one way to broaden the impact and increase publicity of achievements made by the Lab in implementing sustainable practices is to involve the Lab's Community Advisory Board, that Public Affairs is establishing.</p> <p>Recommendation: Invite Public Affairs to at least one EMS Core Team meeting to learn more about the EMS and sustainable practices. The EMS PM indicated that he would try to meet with Public Affairs sooner since the next Core Team meeting is not planned until early 2010.</p>		
<p>PEMP/DOE Scorecard for FY2009: The EMS PM mentioned that tracking EMS-related projects, which is one of two metrics associated with the present PEMP (i.e., Section 5.3), will be dropped from the PEMP for the upcoming year. The EHS Director asked if we will still be tracking projects though, and was given an affirmative answer since this is one important way of showing the effectiveness of the EMS. An EMS Core Team Member added that Federal Energy Management Program tracking on energy-related projects is more detailed now than in the past. The EMS PM did say that LBNL will score well in both the PEMP and the DOE Scorecard this year (i.e., "A" for PEMP, "green" for Scorecard).</p>		<p>Management of PEMP, Scorecard, and EMS goals and performance measures appear are integrated.</p>
<p>Closeout:</p> <ul style="list-style-type: none"> • EMS PM asked if there were any additional 		<p>See earlier response.</p>

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<p>recommendations from management to improve the EMS. The EHS Director felt that twice per year meetings would be beneficial. The second meeting in the middle portion of the fiscal year would allow management to make funding decisions that could still be implemented that fiscal year. The EHS Director also asked how recommendations stemming from the management review would be tracked. The EMS PM said it would be his responsibility to track these items.</p> <p>Recommendation: Host two management review meetings each fiscal year.</p> <ul style="list-style-type: none"> • One EMS Core Team member commented that we expect new greenhouse gas reporting requirements to become affective in fiscal year 2010. These reporting requirements stem from EO 13514 that is expected soon. Based on information he has heard, reporting on only scope 1 (direct emissions associated with owned or operated activities) and 2 (indirect emissions from offsite power generation) activities will be required. Scope 3 covers activities such as business travel, employee commuting, waste transportation and disposal, and supply chain for materials. 		